

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

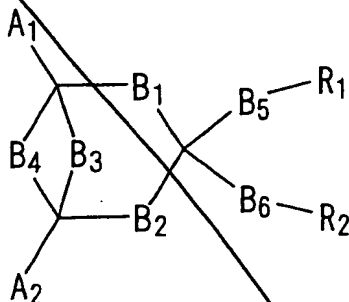
- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

What is claimed is:

1 An electro luminescent element comprising at least one organic compound layer between electrodes, wherein,  
at least one said organic compound layer is a condensed ring  
5 compound derivative represented by the chemical formula,



in which A1 and A2 represent substituents, B1 through B6 represent directly combined or 2-functional substituents, and R1 and R2  
15 represent functional units with hole transporting ability, luminescence, and electron transporting ability.

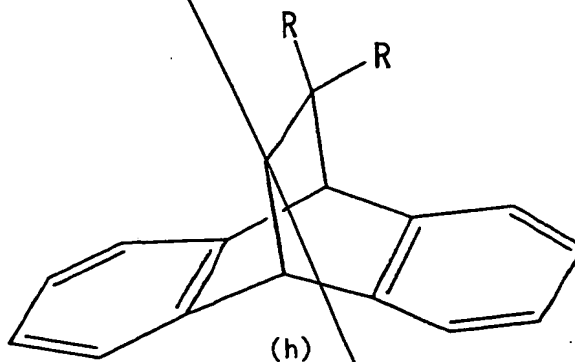
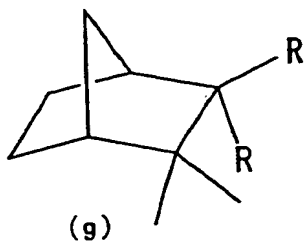
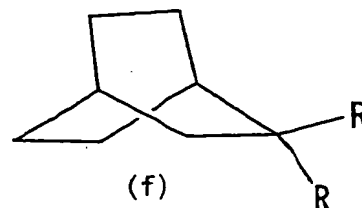
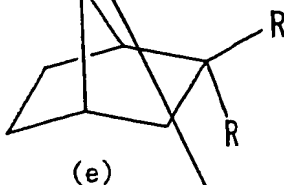
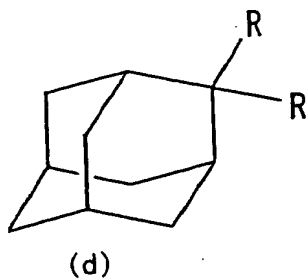
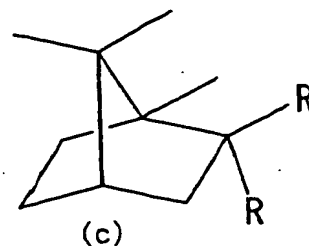
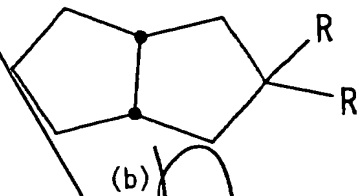
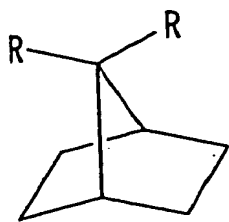
2 An electro luminescent element according to claim 1,  
wherein each of said functional units R1 and R2 is selected from  
20 the group consisting of triphenylamine, coumarin, and oxadiazole derivative.

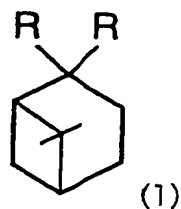
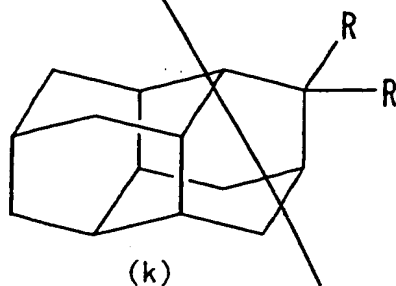
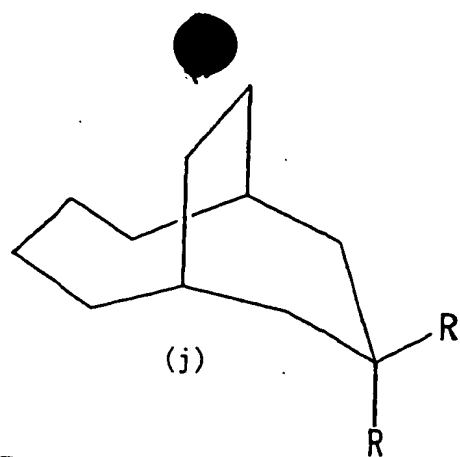
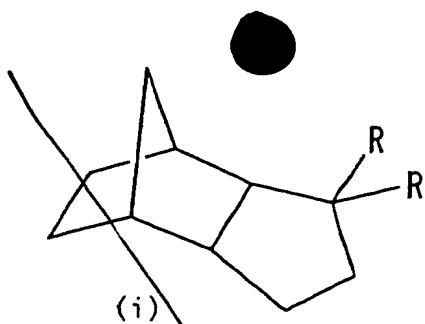
3. An electro luminescent element according to claim 1,  
wherein said condensed ring compound derivative is distributed  
25 among host materials and the host materials are further layered

in said organic compound layer.

4. An electro luminescent element according to claim 1,  
wherein said condensed ring compound derivative has a structure

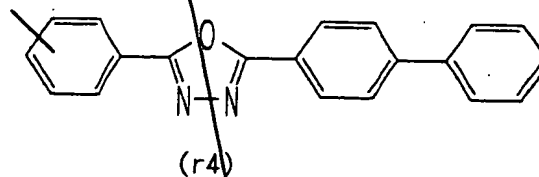
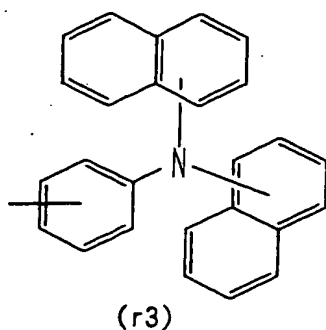
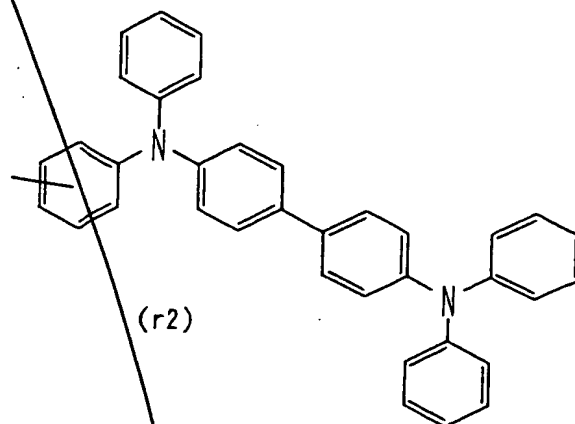
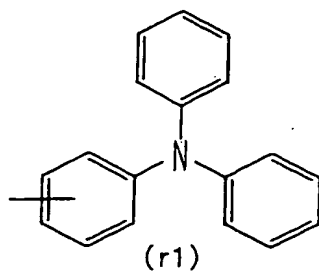
5 represented by one of the following chemical formulae, (a) to (l):



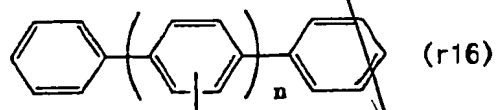
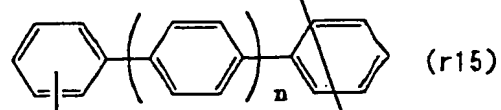
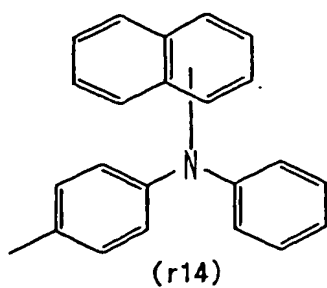
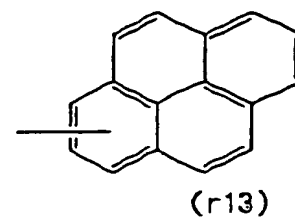
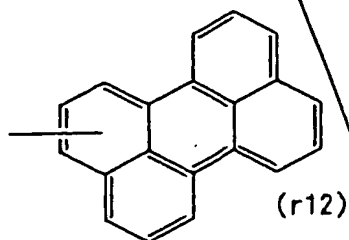
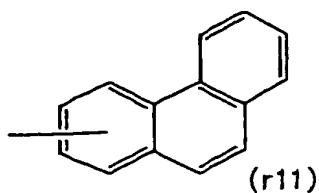
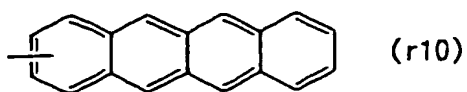
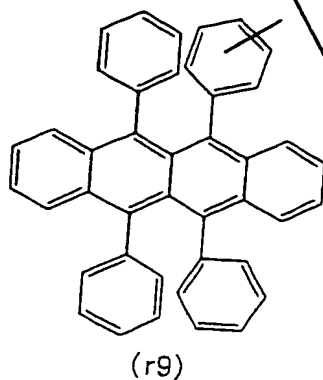
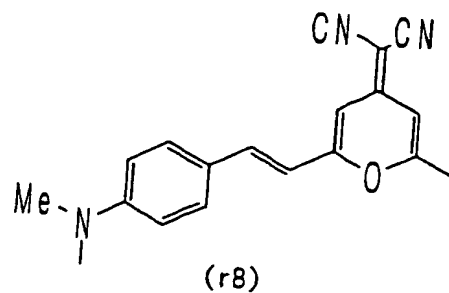
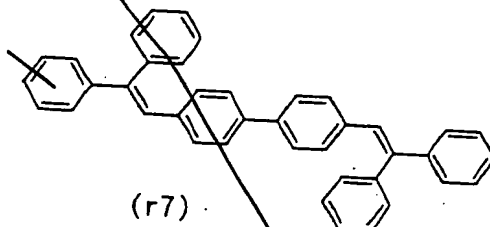
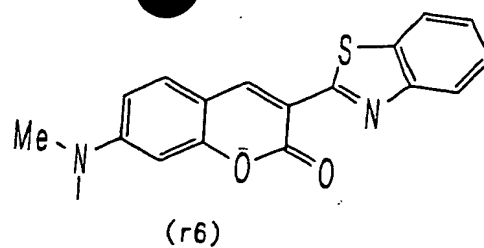
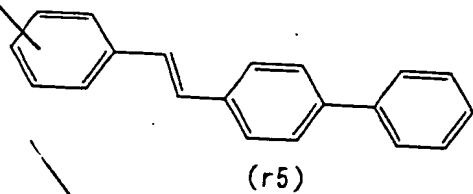


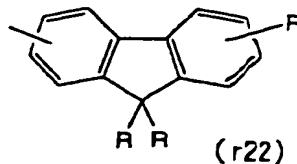
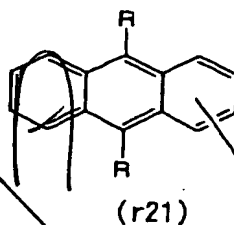
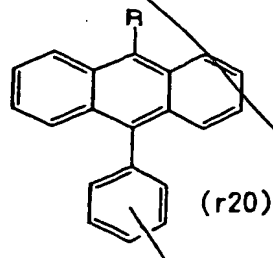
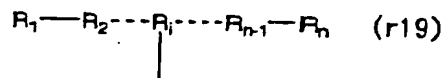
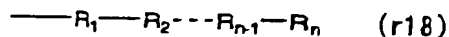
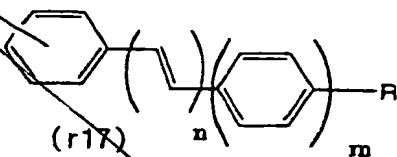
in which R represents said functional unit.

5. An electro luminescent element according to claim 1, wherein, said functional unit has a structure represented by one of the following chemical formulae, (r1) to (r22):



and





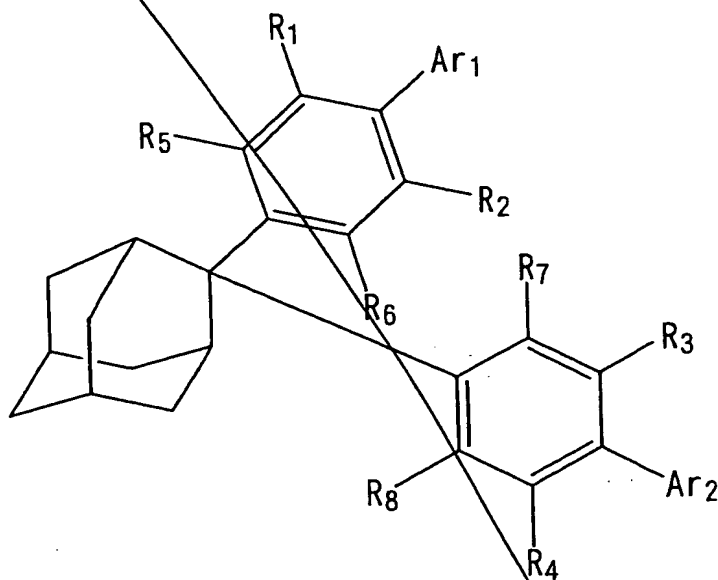
in which n, m, and i represent integers, R represents saturated hydrocarbon from C1 through C30, an isomer thereof, or an aromatic compound.

6. An electro luminescent element according to claim 5, wherein said aromatic compound R is selected from the group consisting of phenyl, naphthyl, indenyl, fluorenyl, phenanthryl, anthranyl, pyrenyl, chrysenyl, naphthacenyl, benzophenanthrenyl, furanyl, thiophenyl, pyrrolyl, oxazolyl, isoxazolyl, pyrazolyl, triazolyl, furazalyl, pyridyl, oxazol, morpholyl, thiazyl, pyridazyl, pyrimidyl, pyrazyl, triazyl, benzofuryl, isobenzofuryl, benzothiophenyl, indolyl, isoindolyl, benzoxazolyl, benzothiazolyl, benzoimidazolyl, chromeryl, quinolyl, isoquinolyl, cinnolyl, phthalazyl, quinazolyl, quinoxalyl, dibenzofuril, carbazolyl, xanthenyl, acridinyl, phenanthridinyl, phenanthryl, phenaziny, phenoxaziny, thianthrenyl, indoliziny, quinoliziny,

naphthyridinyl, purinyl, puritedinyl, oxadiazolyl, oxathiazolyl,  
>C=C<, >C=N-, -N=N-, -N(R)-, -O-, -S-, -SO-, -SO<sub>2</sub>-, -Si(R<sub>2</sub>)-, >C=Si<,  
-C≡C-, and -B(R)-.

5 7. An electro luminescent element comprising at least one  
organic compound layer between electrodes, wherein,

at least one said organic compound layer is an adamantane  
derivative represented by the chemical formula,



in which R<sub>1</sub> through R<sub>8</sub> represent substituents, and Ar<sub>1</sub> and Ar<sub>2</sub>  
represent functional units having hole transporting ability,  
25 luminescence, and electron transporting ability.

8. An electro luminescent element according to claim 7,  
wherein,

said adamantane derivative is distributed among host  
materials and the host materials are further layered in said organic  
5 compound layer.

9. An electro luminescent element according to claim 7,  
wherein each of said substituents R1 through R8 is a functional  
group selected from a group of alkyl group, aryl group, allyl group,  
10 alkene group, alkyne group, alkoxy group, hydroxyl group,  
hydroxylate group, thiocarboxy group, dithiocarboxy group, sulfo  
group, sulfinio group, sulfeno group, oxycarbonyl group, haloformyl  
group, carbamoyl group, hydrazinocarbonyl group, amidino group,  
cyano group, isocyano group, cyanato group, isocyanato group,  
15 thiocyanato group, isothiocyanato group, formyl group, oxo group,  
thioformyl group, thioxo group, mercapto group, amino group, imino  
group, hydrazino group, aryloxy group, sulfide group, halogen group,  
nitro group, and silyl group.

20 10. An electro luminescent element according to claim 7,  
wherein each of said functional units Ar1 and Ar2 has an aryl  
skeleton as a basic skeleton.

11. An electro luminescent element according to claim 10,  
25 wherein said aryl skeleton is selected from the group of consisting



of phenyl, naphthyl, and phenanthryl.

12. An electro luminescent element according to claim 10,  
wherein each of said functional units Ar1 and Ar2 is further  
5 substituted by a functional group selected from a group of alkyl  
group, aryl group, allyl group, alkene group, alkyne group, alkoxy  
group, hydroxyl group, hydroxylate group, thiocarboxy group,  
dithiocarboxy group, sulfo group, sulfinio group, sulfeno group,  
oxycarbonyl group, haloformyl group, carbamoyl group,  
10 hydrazinocarbonyl group, amidino group, cyano group, isocyano group,  
cyanato group, isocyanato group, thiocyanato group, isothiocyanato  
group, formyl group, oxo group, thioformyl group, thioxo group,  
mercapto group, amino group, imino group, hydrazino group, alkoxy  
group, aryloxy group, sulfide group, halogen group, nitro group,  
15 and silyl group.

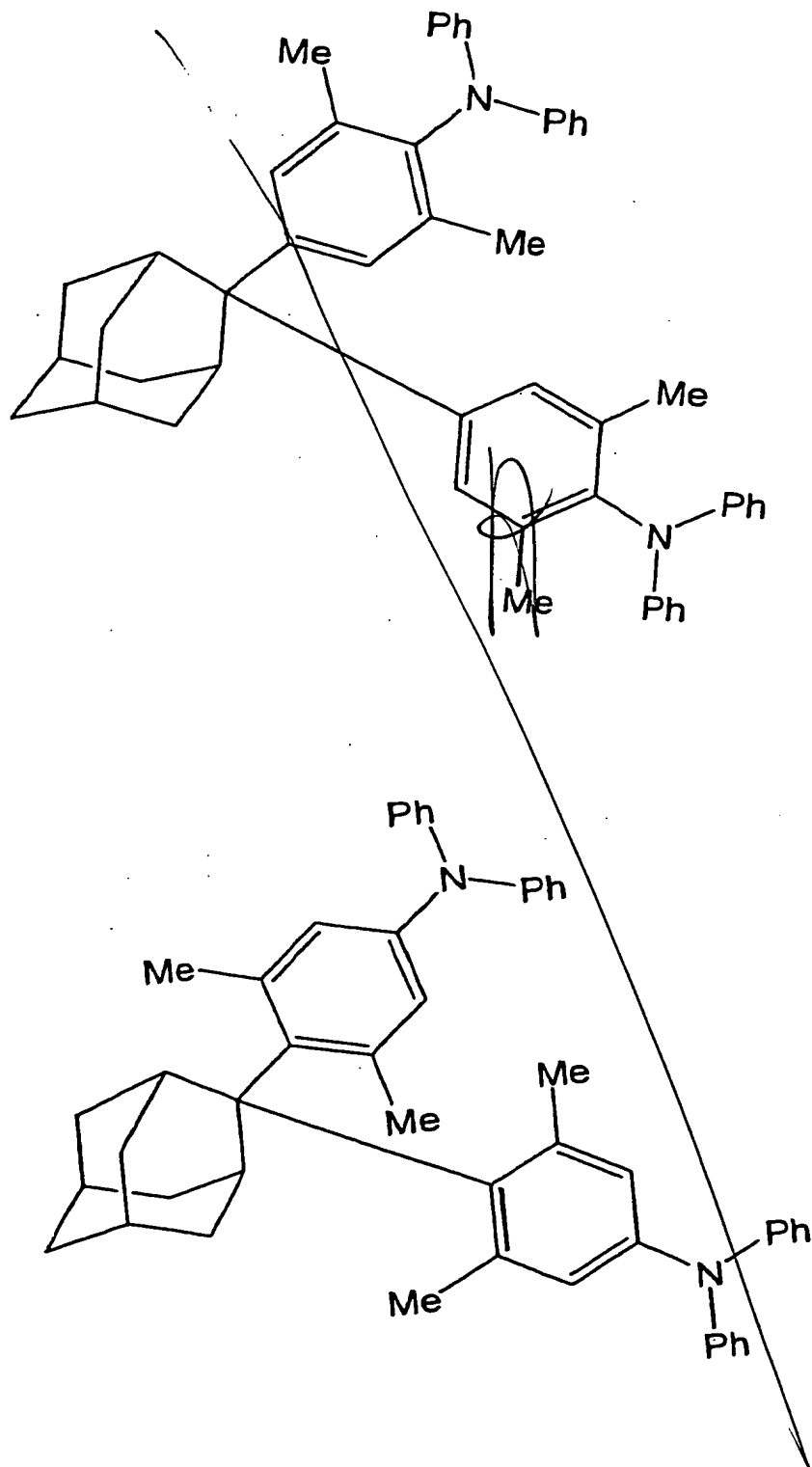
13. An electro luminescent element according to claim 7,  
wherein said adamantane derivative has a structure represented by  
one of the following chemical formulae (a1) to (a13):

000000-000000

5

10

15



(a1)

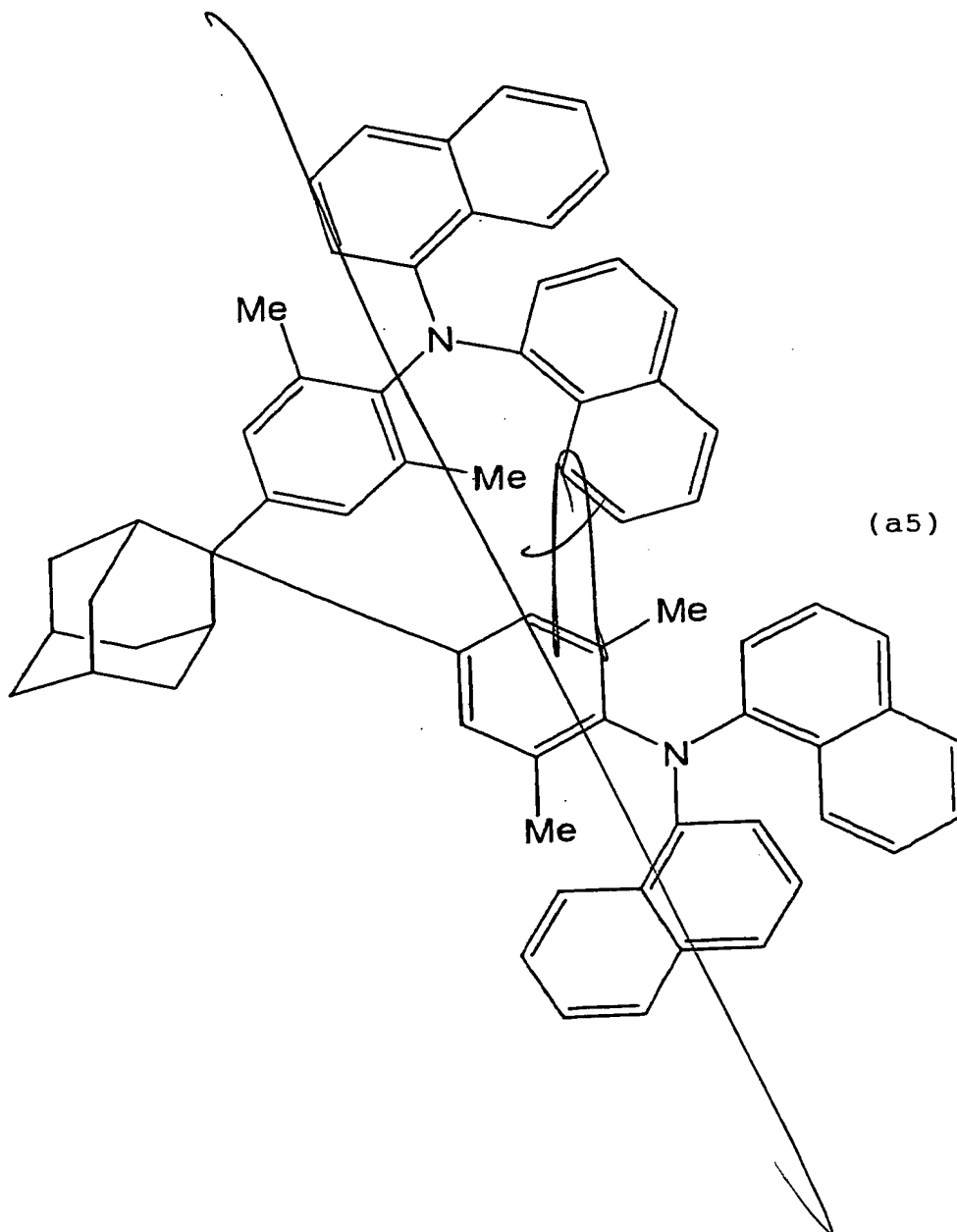
(a2)

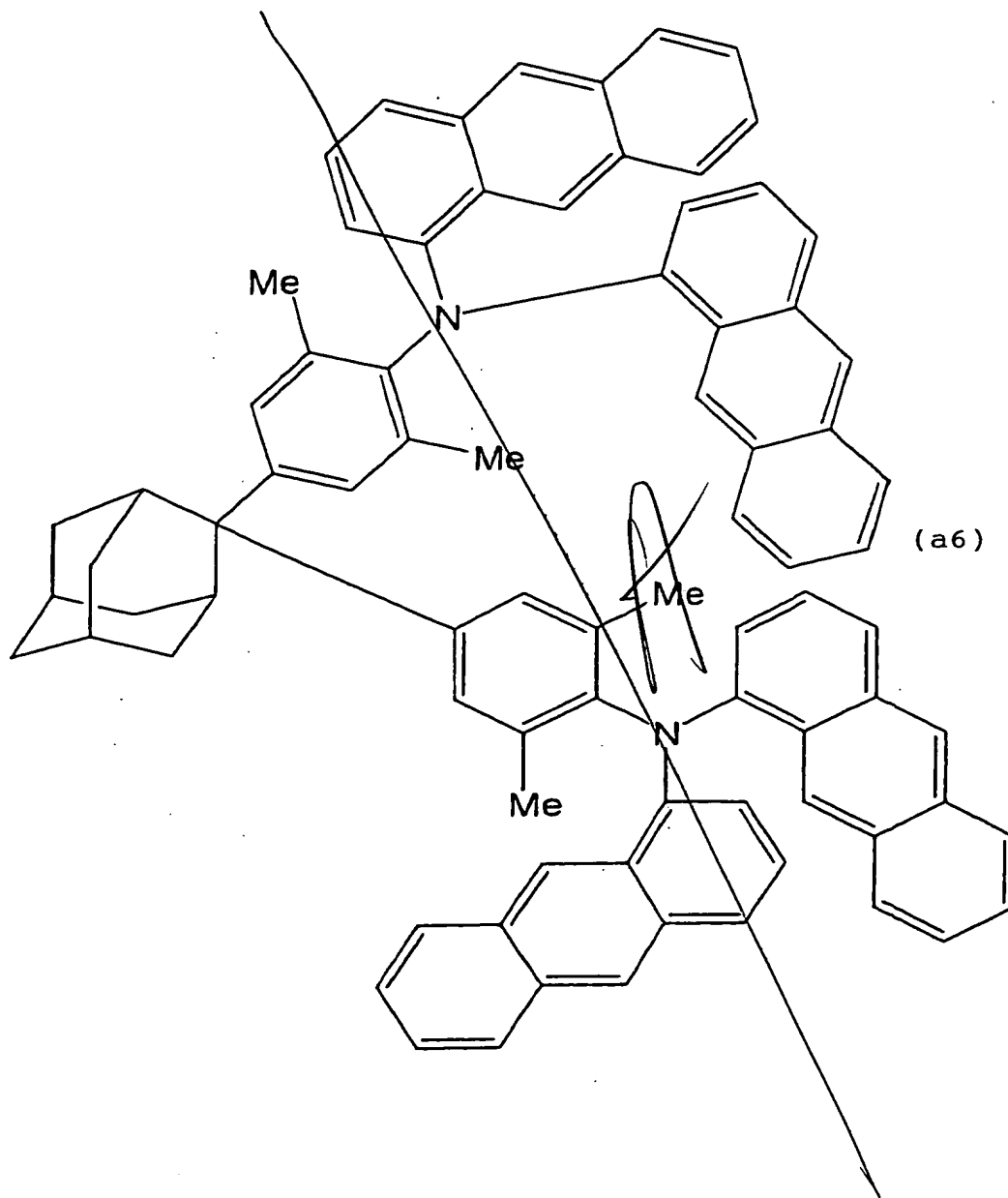
20



5

10

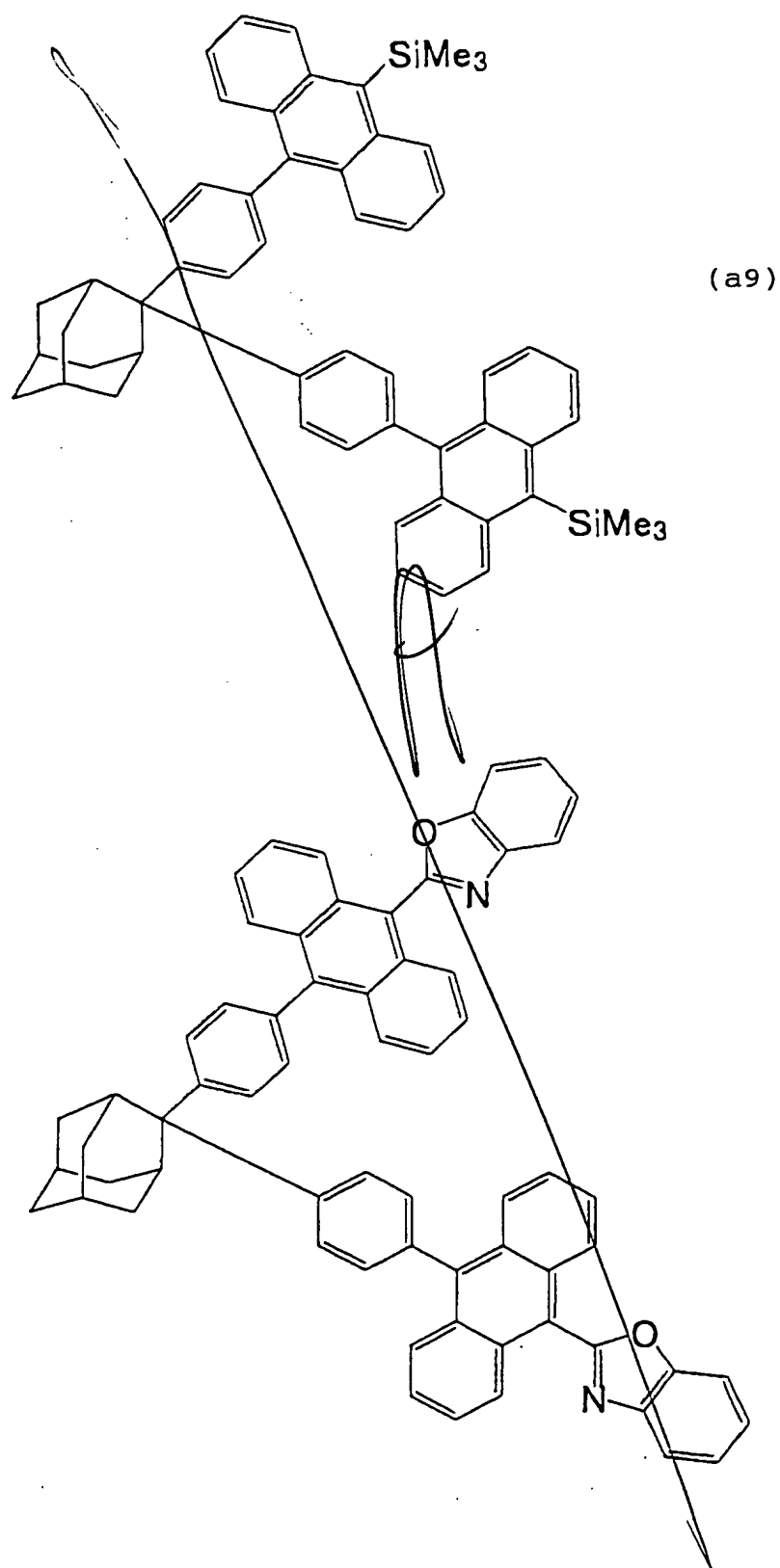




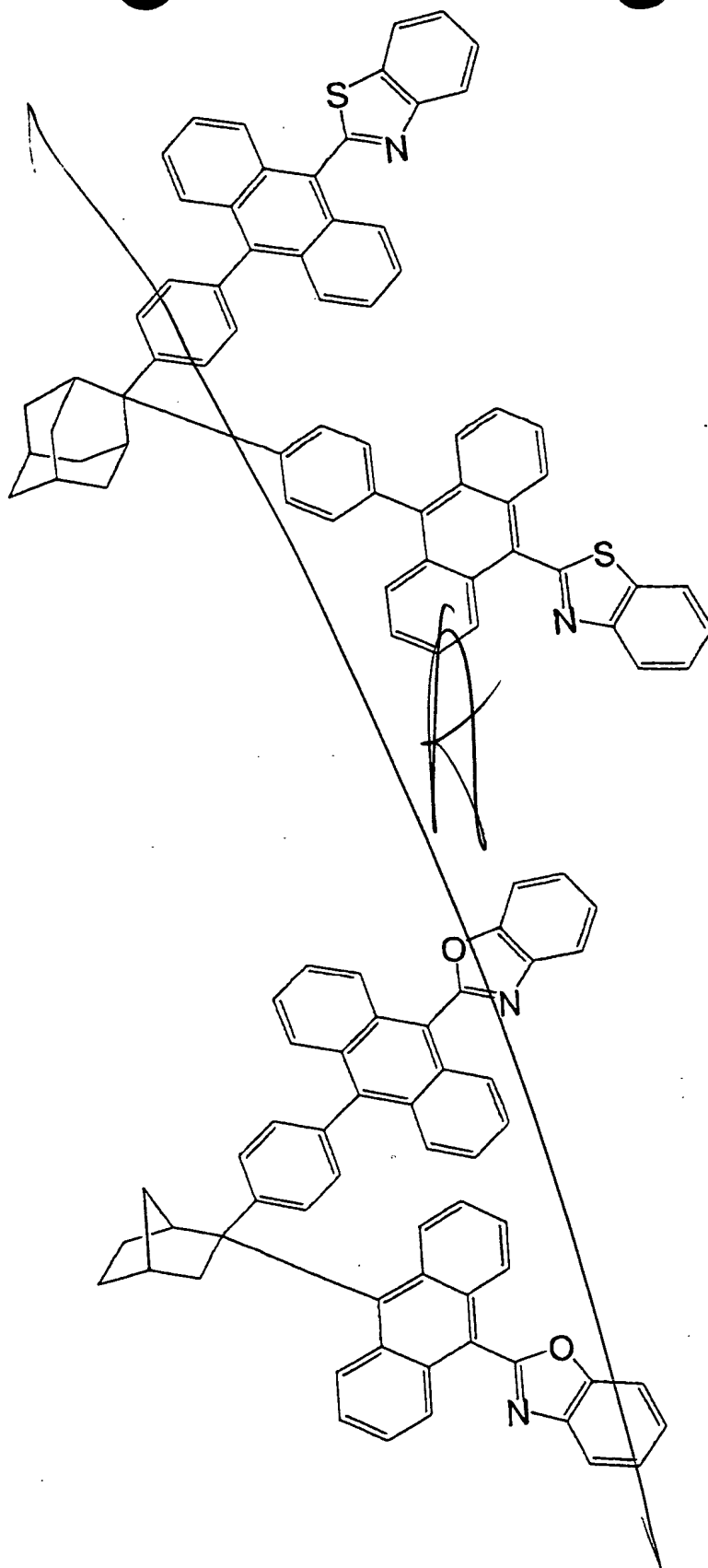
20



000000 04000000



25

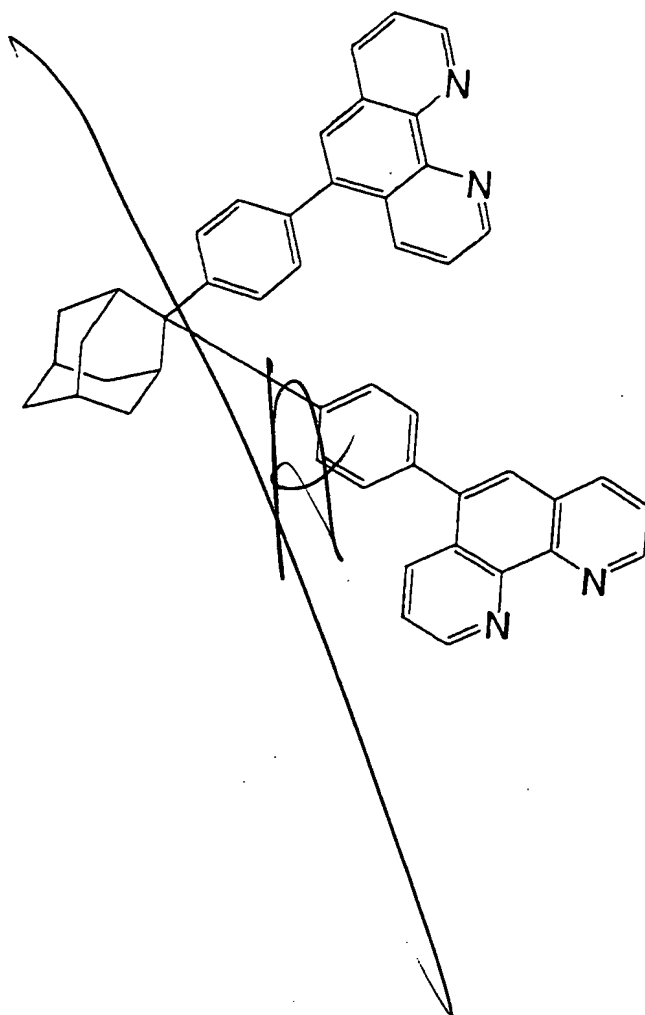


(a11)

(a12)



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	



ADD  
A3